

SONY[®]

VIDEOCASSETTE RECORDER **B**etamax[®]

SL-5400

This machine can be used with any videocassette tapes having the mark **B**



OPERATING INSTRUCTIONS

The operating instructions for the SL-5400 found herein are supplemented by a separately-bound ready-reference guide.

Detailed instructions found in this booklet offer complete directions for connection, as well as detailed descriptions for the use of all viewer controls.

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NOTE: This machine conforms to the **B II** and **B III** type recording and playback formats, and will playback tapes recorded in the **B I** format.

OWNER'S RECORD

The model and serial numbers are located at the rear. Record these numbers in the spaces provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. SL-5400

Serial No. _____

WARNING

To prevent fire or shock hazard, do not expose the set to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

FEATURES

Ease of operation

Merely insert a videocassette and depress one button for recording. The fast forward or rewind mode may be selected directly from the play mode.

Long playing time with a small videocassette

Playing time up to four and a half hours in the **B III** mode, or three hours in the **B II** mode is possible on a small Betamax L-750 videocassette.

TV recording

Built-in electronic tuners for VHF and UHF receive telecast signals to permit TV recording. Recording of one TV program is possible while viewing another.

Playback on a TV receiver

The picture and sound of a recorded videocassette may be played on a regular TV receiver.

Camera/microphone recording

Recordings may be made using a camera and microphone (optional). When the HVC-1000 or HVM-100 Video camera is used, the tape transport is remotely controlled by the switch on the camera.

Timer recording

With the aid of the built-in timer, TV recordings may be made while the recorder is unattended. Recording can be started at the desired time within three days, and can be continued everyday at the same time.

Pause mode

The tape may be momentarily stopped in record, playback or audio dub mode by using the PAUSE button on the recorder or the *BetaScan* control unit. A freeze frame picture may be obtained when the PAUSE button is pressed during playback.

Betascan operation

To locate a particular portion rapidly, the tape may be advanced or rewound at high speed while displaying the picture on the TV screen.

Dubbing audio

Audio (commentary, music, etc.) may be added to a previously made video recording.

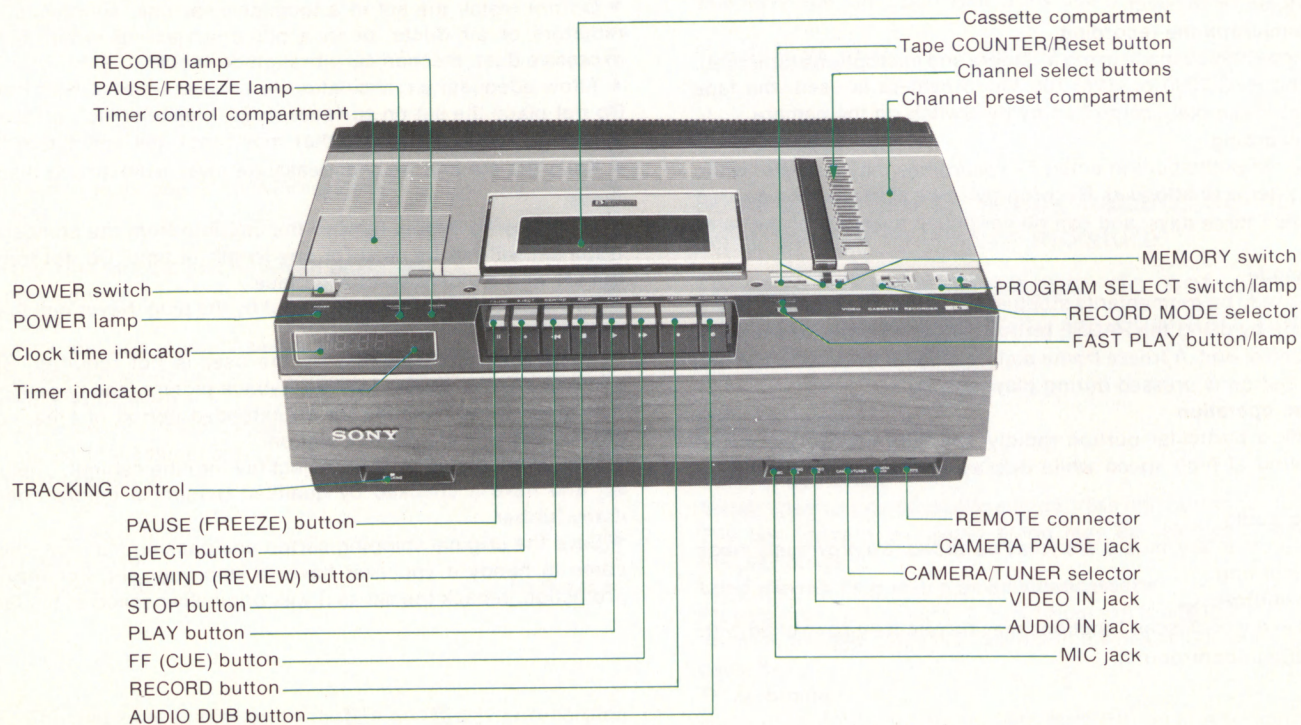
Remote control

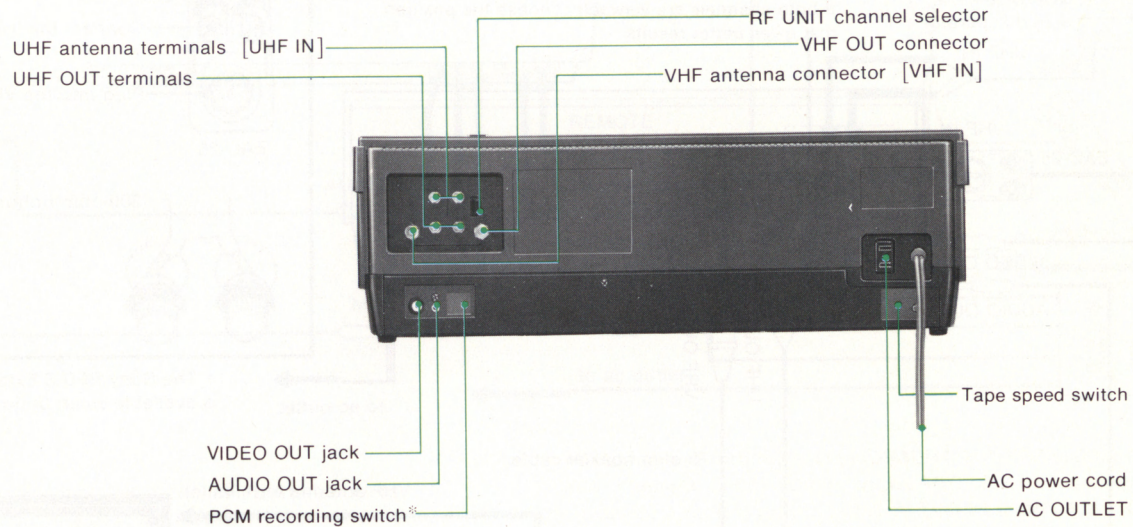
The pause and Betascan functions may be remotely controlled with the *BetaScan* control unit.

GENERAL NOTES

- This machine is designed for operation in a horizontal position and only from 120 V ac, 60 Hz.
- Do not install the set in a location near heat sources, such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Allow adequate air circulation to prevent internal heat buildup. Do not place the set on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.
- Keep the set and the videocassette away from strong magnetic fields.
- After playing a tape, remove the cassette from the compartment if the set will not be used for any length of time. Do not transport the set with a videocassette in place.
- To disconnect the cord, pull it out by the plug. Never pull the cord itself.
- Generally, head-cleaning by the user is not required. Should snow or streaks appear in the playback picture (see page 12) after having used the machine for an extended period of time, consult your dealer or Sony service station.
- Should any liquid or solid object fall into the cabinet, unplug the set and have it checked by qualified personnel before operating it any further.
- Save the original shipping carton and packing material; they will come in handy if you ever have to ship your set. For maximum protection, repack the set as it was originally packed at the factory.

LOCATION OF PARTS AND CONTROLS

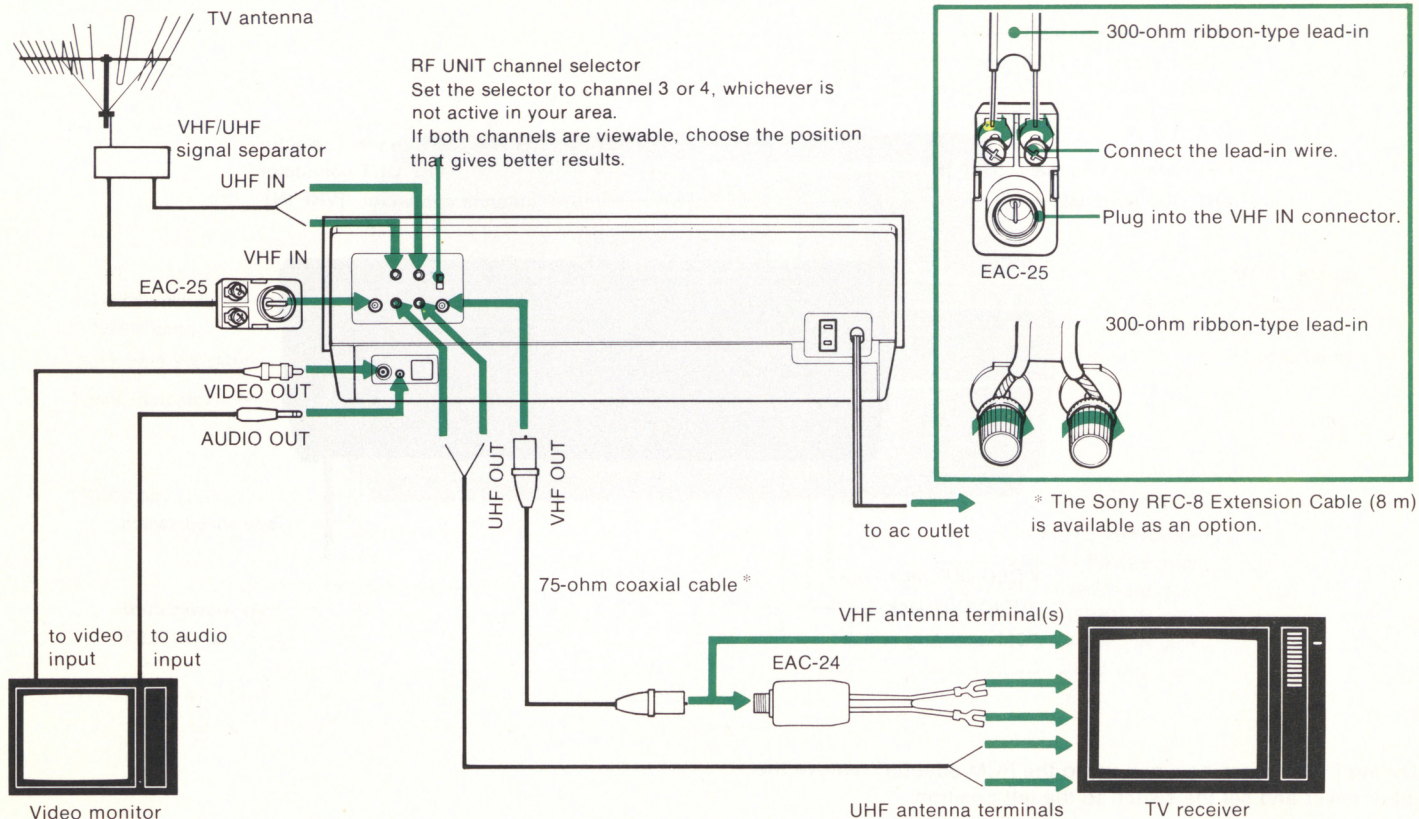


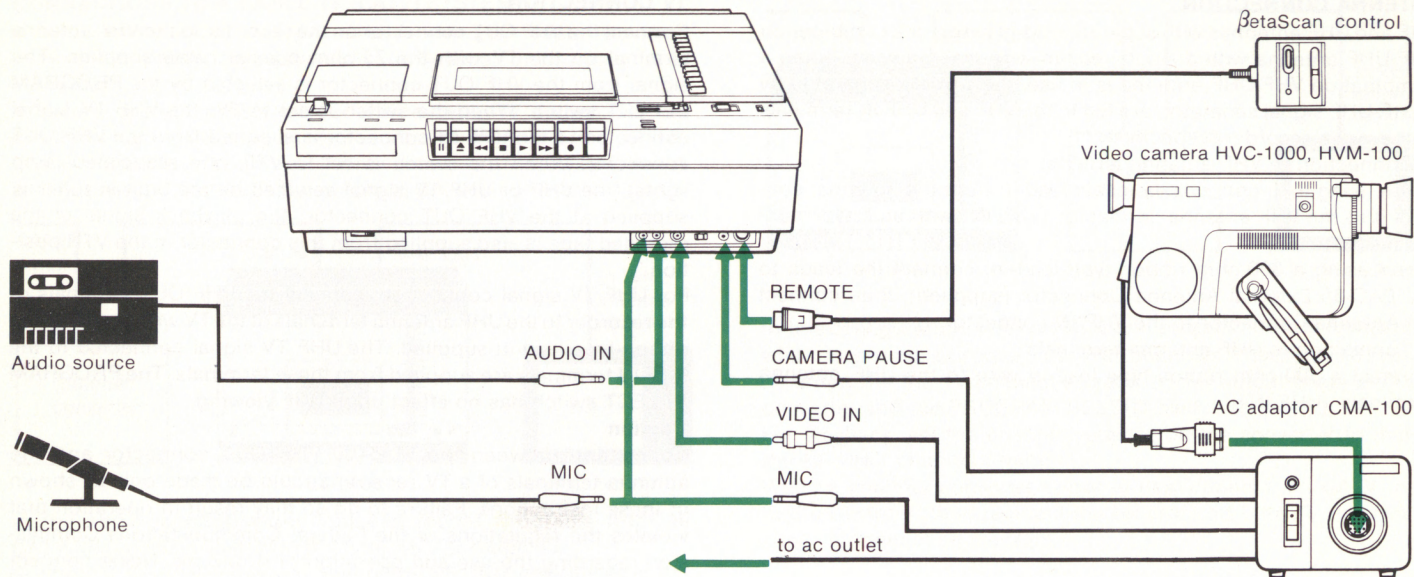


*During PCM recording when using the PCM adaptor, remove the rubber cover and set the switch to the left position.

CONNECTIONS

CONNECTION DIAGRAMS





Notes

- Cameras must conform to American TV (EIA) standards.
- The MIC jack has priority over the AUDIO IN jack. Any input to the AUDIO IN jack is automatically disconnected whenever a microphone is inserted into the MIC jack.

- In camera recording, set the CAMERA/TUNER Selector to CAMERA, and connect a microphone to the MIC jack, or connect a tape recorder or a record player to the AUDIO IN jack.
- Before making a TV recording, check that the CAMERA/TUNER Selector is set to TUNER and the cable from the MIC jack is disconnected.

ANTENNA CONNECTION

VHF and UHF antennas with separate lead-in wires, or a combination VHF-UHF antenna with a single lead-in wire may be used. When a combination VHF-UHF antenna is in use, the signals, separated by a VHF-UHF signal separator, are fed to the VHF and UHF IN terminals of the video recorder respectively.

- Connection to VHF antenna terminal

When using a 75-ohm coaxial cable lead-in from the antenna, connect it to the VHF antenna connector [VHF IN] with an F-type connector (optional).

When using a 300-ohm ribbon-type lead-in, connect the leads to the EAC-25 External Antenna Connector (supplied), then connect the Antenna Connector to the VHF IN connector.

- Connection to UHF antenna terminals

Connect a 300-ohm ribbon-type lead-in wire to the UHF antenna terminals [UHF IN].

TV CONNECTION

Connect the VHF OUT connector on the recorder to the VHF antenna terminal on the TV with the 75-ohm coaxial cable supplied. The signal from the VHF OUT connector is selected by the PROGRAM SELECT switch. When the switch is set to TV, the VHF TV signal connected to the VHF IN connector is supplied from the VHF OUT connector. When the switch is set to VTR (the associated lamp lights), the VHF or UHF TV signal selected by the built-in tuner is supplied at the VHF OUT connector; the playback signal of the recorded tape is also supplied from this connector in the VTR position.

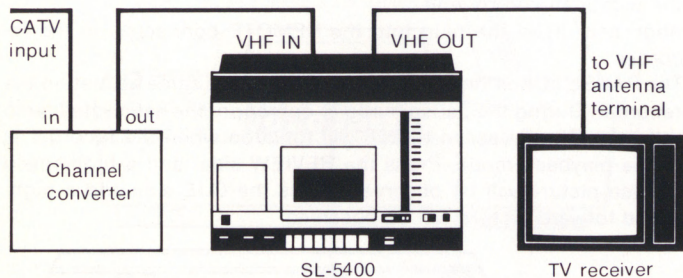
For UHF TV signal connection, connect the UHF OUT terminals of the recorder to the UHF antenna terminals of the TV with the 300-ohm ribbon-type lead-in supplied. The UHF TV signal connected to the UHF IN terminals are supplied from these terminals. The PROGRAM SELECT switch has no effect upon UHF viewing.

Caution

Connection between the SL-5400 VHF OUT connector and the antenna terminals of a TV receiver should be made only as shown in these instructions. Failure to do so may result in operation that violates the regulations of the Federal Communications Commission regarding the use and operation of rf devices. Never connect the output of the SL-5400 to an antenna or make simultaneous (parallel) antenna and SL-5400 connections at the antenna terminals of your receiver.

CONNECTIONS TO A CABLE TV (CATV) SYSTEM

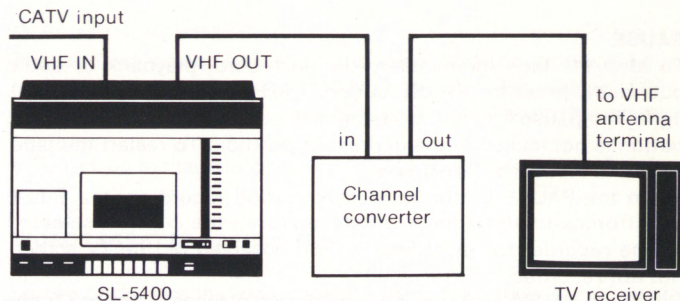
- It is recommended that you consult with your cable television company for proper connection of your Betamax unit to your cable TV system.
- Before operating the recorder with a cable-TV system, set the RF UNIT channel selector on the recorder to channel 3 or 4, whichever is not active in your area. If both channels are viewable, check which gives better results by switching between channels 3 and 4.



In the above configuration, you can record programs from all CATV channels as well as VHF channels 2 through 13.

Set the TV channel selector to that of the RF UNIT channel selector. Set the channel select button on the recorder to receive the output channel of converter. Set the PROGRAM SELECT switch on the recorder to the VTR position.

Thus, the channel to be viewed or to be recorded is selected on the converter.



In this configuration, you can view one program from the converter while recording a program on VHF channels 2 through 13 via the recorder. Set the TV channel selector to the output channel of the converter and the PROGRAM SELECT switch to TV.

For playback, set the channel selector on the converter to that of the RF UNIT channel selector.

When a channel converter is not in use, connect the CATV input to the recorder, then connect the recorder and the TV receiver as show in connection diagram.

OPERATION

PAUSE

To stop the tape momentarily during record, playback or audio dub mode, press the PAUSE button. The PAUSE/FREEZE lamp will light. The pause function is electrically controlled, thus the PAUSE button is not locked in the depressed position. To restart the tape, push the PAUSE button again.

When the PAUSE button is pressed during recording, the E-to-E (electronics-to-electronics) mode picture—the picture selected by the recorder for recording, will be observed on the TV screen, but not recorded.

When the PAUSE button is pressed during playback, a freeze frame picture will appear on the TV screen. A “snowy” band may appear in the freeze frame picture.

The pause mode may be remotely controlled with the *BetaScan* control unit.

- After more than about 5 minutes in the pause mode of operation, the pause mode will be automatically released, and the previous mode (record or playback) will be restored.
- Recordings made with the use of the PAUSE button may exhibit momentary instability in playback at the point the pause mode was initiated.

REWIND, FAST FORWARD AND BETASCAN OPERATION

Press the REWIND or FF button for rewind or fast forward operation. During rewind or fast forward mode, the E-to-E mode picture will appear on the TV screen.

When the tape has reached the end of the rewind or fast forward operation, it will stop automatically and the respective function button will be released. The tape may be stopped at any point during rewind or fast forward by pressing the STOP button.

When the REWIND or FF button is pressed during playback, the

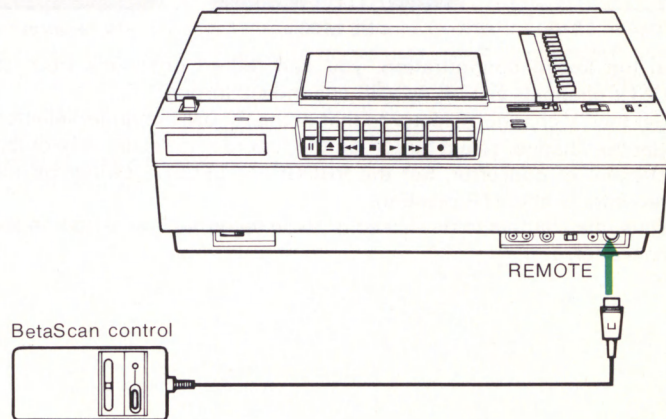
recorder starts Betascan operation, and a forward or reverse picture with high-speed motion will be observed on the TV screen. During Betascan operation, streaks may appear in the playback picture. The Betascan operation may be remotely controlled with the *BetaScan* control unit.

REMOTE CONTROL

The pause and Betascan features may be remotely controlled with the *BetaScan* control unit.

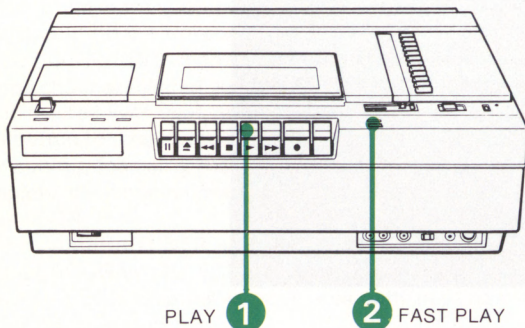
Align and insert the plug into the REMOTE connector on the recorder.

The PAUSE button on the control functions the same as that on the recorder. During the pause mode of operation, the associated lamp will light. The Betascan button will function when the recorder is in the playback mode. Press the REVIEW side, and a high-speed reverse picture will be observed. Press the CUE side and a high-speed forward picture will be observed.



FAST PLAY

When the FAST PLAY button is pressed during playback, playback speed will be three times normal speed. The associated lamp will light. To restore the normal playback speed, press the FAST PLAY button again. The noise band may appear on the fast-play picture. In such a case, turn the TRACKING control until the best picture is obtained.



TAPE COUNTER AND MEMORY SWITCH

Reset the tape COUNTER before starting a recording for later reference in playback.

The MEMORY switch is used for precise program relocation of a recorded tape.

- ❶ Locate any desired starting point and reset the tape COUNTER to register this point ("0000" shown on the COUNTER).
- ❷ Set the MEMORY switch to ON.
- ❸ Play or record a tape.
- ❹ Press the STOP button.

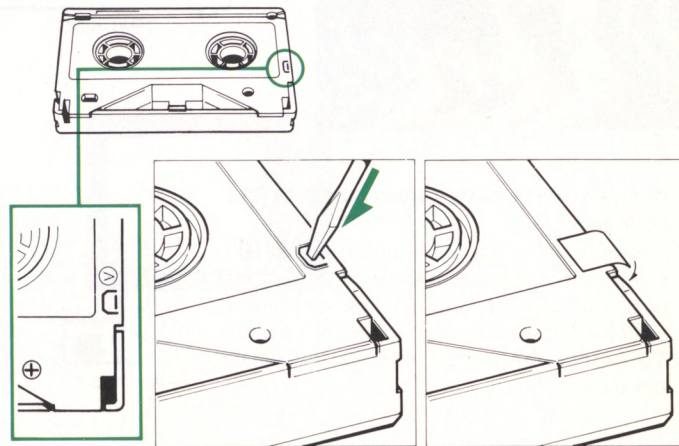
- ❺ Press the REWIND button.

The tape will rewind and stop, and the REWIND button will be released automatically at a point near tape COUNTER reading "9999" (one count before "0000" in order to avoid missing the starting point.)

- To rewind the tape further than "0000", press the REWIND button again.

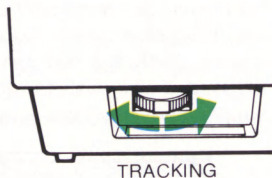
VIDEOCASSETTE SAFETY TAB

To protect a recording from accidental erasure, break off the tab on the bottom of the videocassette using a screwdriver or similar device. With the tab removed, the RECORD button cannot be pressed. If you wish to record on a cassette with the tab removed, simply cover the hole with a piece of cellophane or vinyl tape.



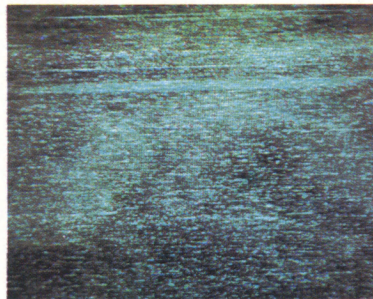
TRACKING ADJUSTMENT

In the unlikely event that streaks or snow appear in the playback of tapes made on other recorders or in the fast-play picture, turn the **TRACKING** control in either direction until the best picture is obtained. Allow a second or two for new settings to take effect. When playback of this particular tape is finished, return the **TRACKING** control to its center detent position.



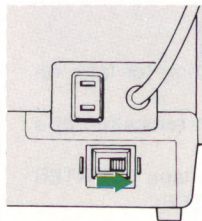
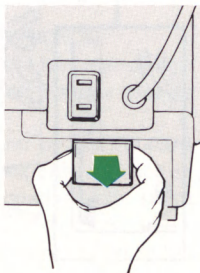
SHOULD SNOW OR STREAKS APPEAR

The appearance of snow or streaks in the playback picture may indicate the need of cleaning the video heads inside the recorder. Should the need for head cleaning be suspected, consult the dealer from whom the set was purchased, or a local Sony authorized service station.



PLAYBACK OF TAPES RECORDED IN **B I** FORMAT

Playback of the tapes recorded in the **B I** format is possible with this recorder. To playback this type of tape, set the tape speed switch on the rear panel to the **B I** position. To expose the switch, remove the plastic cover.



During playback of a tape recorded in the **B I** format, the Betascan operation and fast play does not function and a freeze frame picture cannot be obtained in the pause mode.

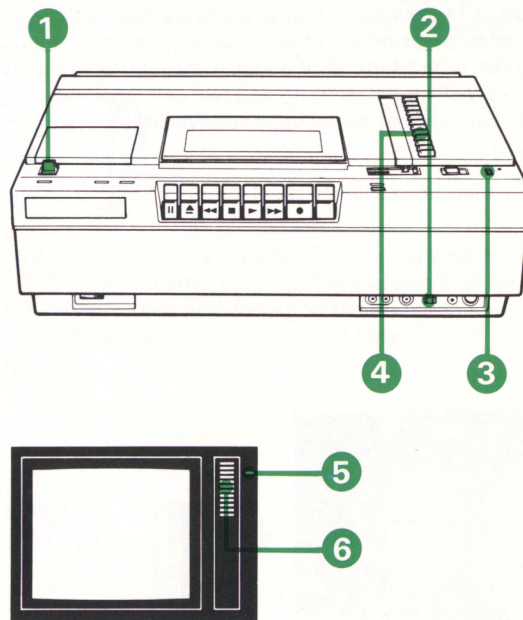
- Reset the switch to its original position (**B II**/**B III**) when playback of this particular tape is finished.

RF UNIT AND TV ADJUSTMENT

The RF UNIT channel selector is located at the rear of the recorder. Before operating the recorder, check that the selector is set to the correct operating channel, 3 or 4, whichever is not active in your area. If channel 4 is in use in your area, the selector should be set to the 3 CH position. If the set is moved to an area where the inactive channel (3 or 4) is different, reset the selector as required.

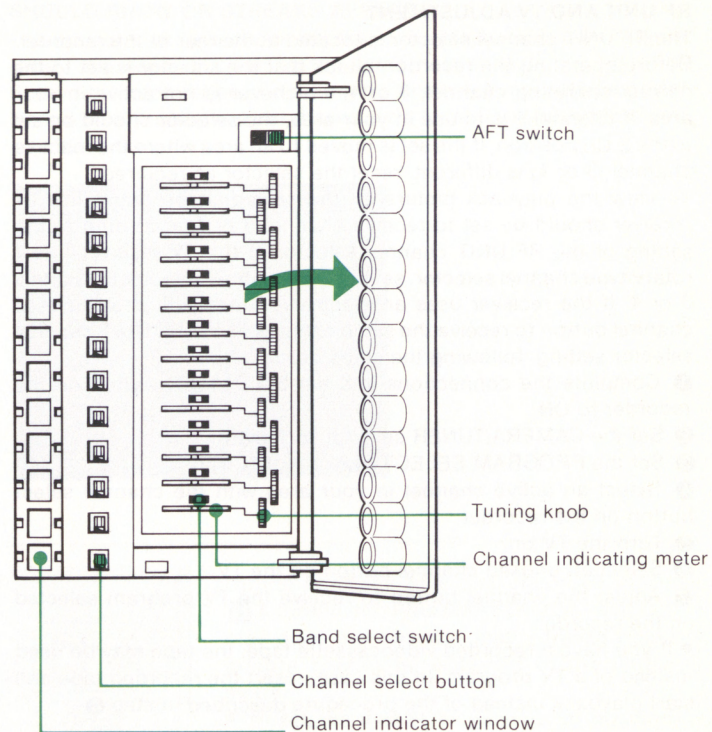
To view the playback picture or the recording program, the TV receiver should be set to receive channel 3 or 4 according to the setting of the RF UNIT channel selector. If the TV receiver has a rotary-type channel selector, set the VHF channel selector to channel 3 or 4. If the receiver uses an electronic tuner, adjust an unused channel button to receive the same channel as the RF UNIT channel selector setting, following the steps below.

- ❶ Complete the connections and set the POWER switch on the recorder to ON.
 - ❷ Set the CAMERA/TUNER selector to TUNER.
 - ❸ Set the PROGRAM SELECT switch to ON VTR.
 - ❹ Select an active channel in your area with the channel select button on the recorder.
 - ❺ Turn the TV on.
 - ❻ Select an unused channel button on the TV.
 - ❼ Adjust the channel button to receive the TV program selected on the recorder.
- If you have a recorded videocassette tape, the tape may be used instead of a TV program. In this case, insert the recorded tape and start playback instead of the procedure described in step ❹

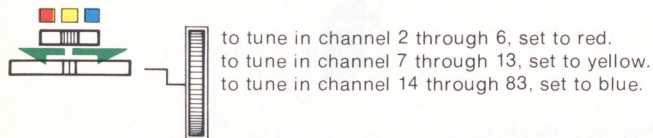


CHANNEL PRESETTING

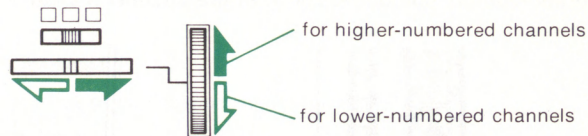
The SL-5400 has a built-in electronic tuner that is capable of receiving up to 14 television channels. Once preset, any channel may be selected by pressing the channel select button on the top panel. The channel select buttons marked A through N are preadjusted at factory to VHF channels 2 - 13 and two UHF channels. These pre-adjusted channels may be set up to receive any local station, VHF or UHF.



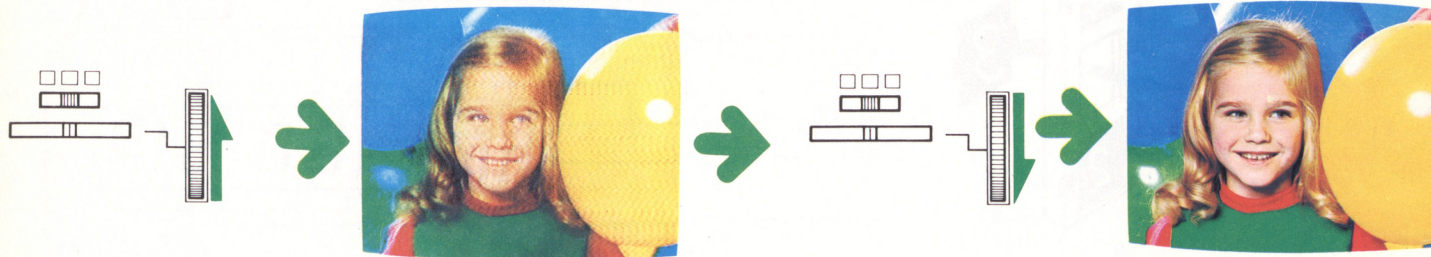
- ❶ Open the channel preset compartment.
- ❷ Set the AFT switch to OFF.
- ❸ Push the channel select button to be preset. The associated channel indicator will light.
- ❹ Set the band select switch associated with the pushed button (if the button marked A is pushed, use the switch A) to one of the three color-coded positions:



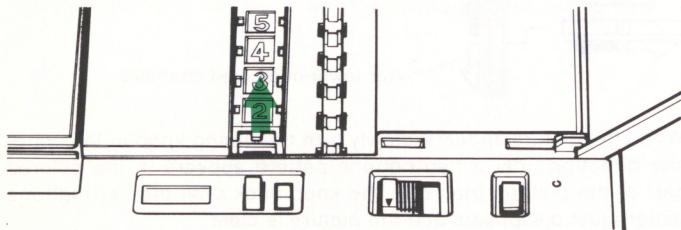
- ❺ Turn the tuning knob until the desired station is properly tuned in. The channel indicating meter provides a visual indication of the approximate location of the tuning control with the operating range of the band select switch.



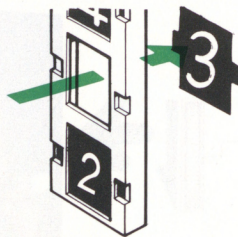
When the picture appears, slowly turn the tuning knob in the opposite direction until a herringbone pattern appears in the colored part of the picture, then turn the knob back until the herringbone pattern just disappears and the picture is clear.



- ⑥ Repeat steps ③, ④ and ⑤ for the other channels.
To identify the channels, consult a newspaper or TV program guide.
⑦ Set the AFT switch to ON when all stations have been set up as desired.
⑧ Remove the channel number sheet from the channel indicator window.



- ⑨ Remove the number segment by pressing it out from the front.



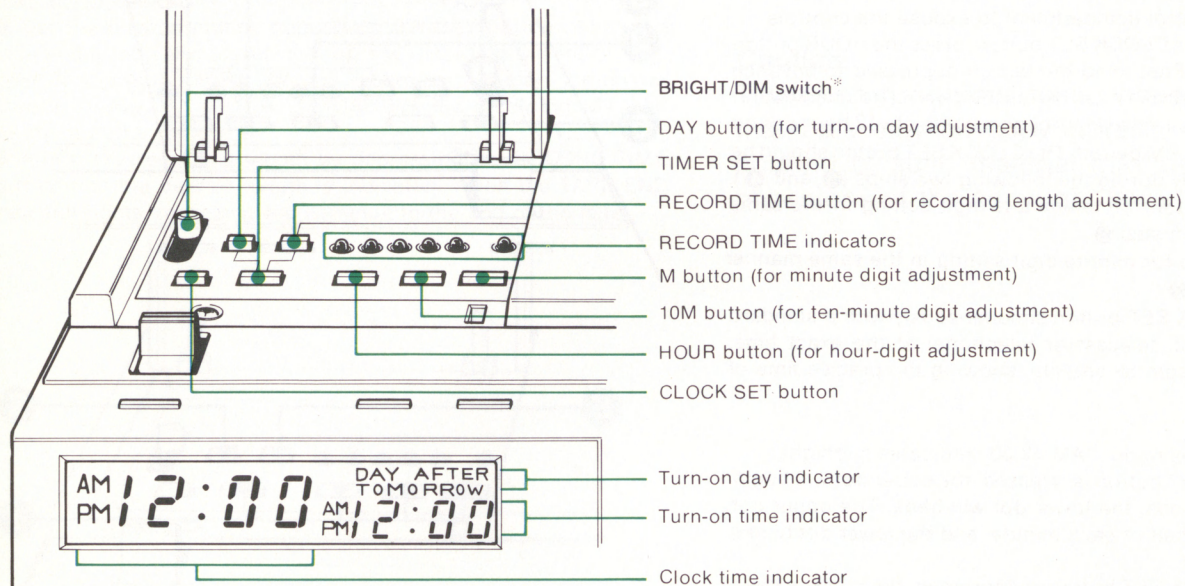
- ⑩ Install the correct number segment. An asterisk (※) segment may be used to indicate an inactive channel.



- ⑪ Replace the sheet.

TIMER OPERATION

The built-in timer functions as a normal clock showing the time in the indicator window. Using the timer as described, a recording may be made while the system is unattended.



*BRIGHT/DIM switch

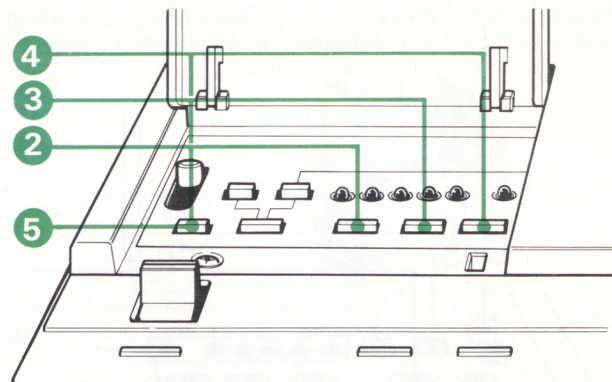
Select the brightness of the time indicator, BRIGHT or DIM. The switch may be set to BRIGHT during daylight hours and to DIM at night.

CLOCK TIME ADJUSTMENT

When the ac power cord is connected to a working outlet, the clock time starts operating, indicating 12:00 and dots begins to flash. The clock time must then be set to the correct time of day.

- ❶ Open the timer control compartment to expose the controls.
- ❷ While depressing the CLOCK SET button, press the HOUR button for hour-digit setting. First keep the button depressed to advance the digits, then push it stroke by stroke as the desired hour indication approaches. You may have to go through a complete 12 hour period to set the correct AM or PM period. The CLOCK SET button should be depressed continuously during the following two steps (❸ and ❹).
- ❸ Press the 10M button for ten-minute-digit setting in the same manner as described in step ❷.
- ❹ Press the M button for minute-digit setting in the same manner as described in step ❷.
- ❺ Release the CLOCK SET button simultaneously with a standard time signal (broadcast, telecast or telephone) at the exact time. The clock will then begin to operate, showing the precise time of day.

- "PM 12:00" indicates noon; "AM 12:00" indicates midnight.
- When the CLOCK SET button is released, the upper dot will begin to blink; after 30 seconds, the lower dot will blink. The upper dot blinks during the first half of each minute, and the lower dot blinks during the second half.
- Whenever the CLOCK SET button is depressed, the clock is reset to 0 seconds displayed time; when released, the clock begins to operate. Avoid unnecessary use of the button which may result in clock time delay.
- If power is interrupted or the ac power cord is disconnected, the time indicator will display 12:00 and the dots will alternately flash quickly when power is reapplied. In this case, reset the clock time.



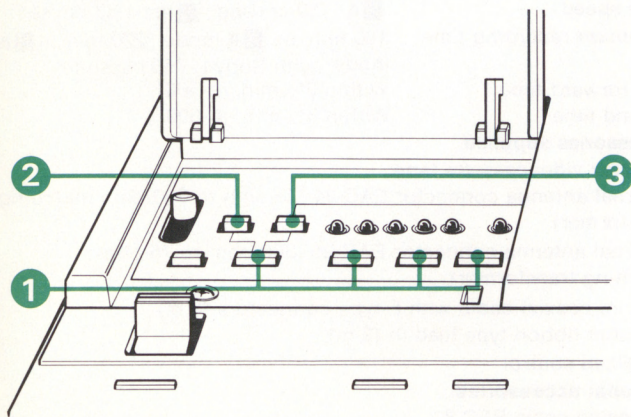
TIMER ADJUSTMENT

For timer recording, set the turn-on time, day and recording length as follows.

❶ Set the turn-on time. While depressing the **TIMER SET** button, depress the **HOUR**, **10M** and **M** buttons until the turn-on time indicator shows the desired time in the same manner as the "CLOCK TIME ADJUSTMENT".

❷ Set the turn-on day by depressing the **DAY** button. When the turn-on day indicator shows nothing, the recording will start today; when it shows **TOMORROW**, the recording will start tomorrow; when it shows **DAY AFTER TOMORROW**, the recording will start on the day after tomorrow.

❸ Adjust the recording length by depressing the **RECORD TIME** button until the desired length is indicated. When the **TAPE END** indicator lights, recording will continue to the end of the tape.



- The recording will start at the set time everyday until the tape is ended or the timer operation is stopped.
- At the end of the tape, the **RECORD** button will be automatically released, and after about 30 seconds, the power will be turned off.
- The set time is memorized until the power is interrupted or the time is reset.

Caution

Television programs, films, video tapes and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of the copyright laws.

TECHNICAL SPECIFICATIONS

General

Video recording system	Rotary two-head helical scanning
Video signal	EIA standard, NTSC color
Storage temperature	-20°C to +60°C (-4°F to +140°F)
Operating temperature	5°C to 40°C (41°F to 104°F)
Antenna	75-ohm external antenna terminal for VHF 300-ohm external antenna terminals for UHF
Channel coverage	VHF channels 2 -13 UHF channels 14 -83
VHF output signal	Channel 3 or 4 (selectable) 75 ohms, unbalanced
Timer	only for recording Electronic digital timer 12-hour-clock cycle synchronized with the power frequency
Power requirements	120 V ac $\pm 10\%$, 60 Hz $\pm 0.5\%$
AC OUTLET	Unswitched max. 400 W
Power consumption	55 W
Weight	15.0 kg (33 lb)
Dimensions	493 × 162 × 376 mm (w/h/d) (19¾ × 6½ × 15 inches)

Video

Input	VIDEO IN: phono-type connector 1.0 V (p-p), 75 ohms, unbalanced, sync negative
Output	VIDEO OUT: phono-type connector 1.0 V (p-p), 75 ohms, unbalanced, sync negative
Signal-to-noise ratio	Better than 45dB

Audio

Input	AUDIO IN: mini jack 100 k ohms, -10 dB MIC: mini jack -60 dB, suitable for microphone with 600-ohm impedance
Output	AUDIO OUT: mini jack Less than 10 k ohms, -5 dB (100 k ohm load), unbalanced B II : 50 - 10,000 Hz B III : 50 - 7,000 Hz Better than 40 dB
Frequency response	
Signal-to-noise ratio	
Tape transport	
Tape speed	B II : 2.0 cm/sec., B III : 1.33 cm/sec.
Maximum recording time	180 min. in B II mode, 270 min. in B III mode (with Sony L-750 cassette)
Fast forward time	Within 3½ min. (L-500)
Rewind time	Within 3½ min. (L-500)

Accessories supplied

Betamax videocassette tape
External antenna connector EAC-24 (75-ohm to 300-ohm matching transformer)
External antenna connector EAC-25 (300-ohm to 75-ohm matching transformer)
75-ohm coaxial cable with F-type connectors (2 m)
300-ohm ribbon-type lead in (2 m)
β etaScan control

Optional accessories

Extension cable RFC-8
Betamax video cassette tape L-250, L-500, L-750

Design and specifications subject to change without notice.